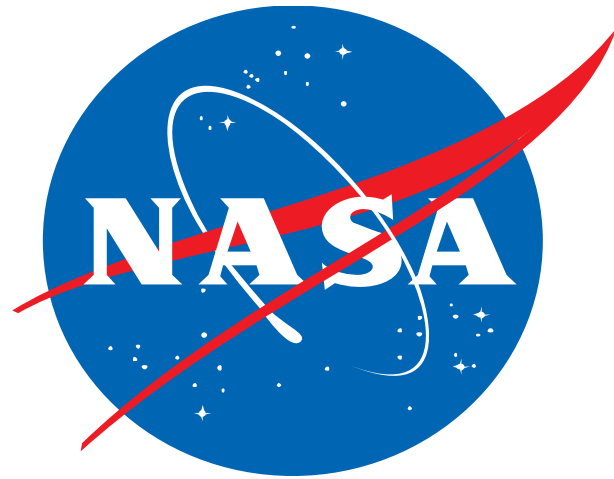


AIAA 92nd TETWOG, Atlanta, GA, Nov. 13-14, 2014

NASA Glenn Research Center, Propulsion Systems Laboratory:
Plan to measure engine core flow water vapor content

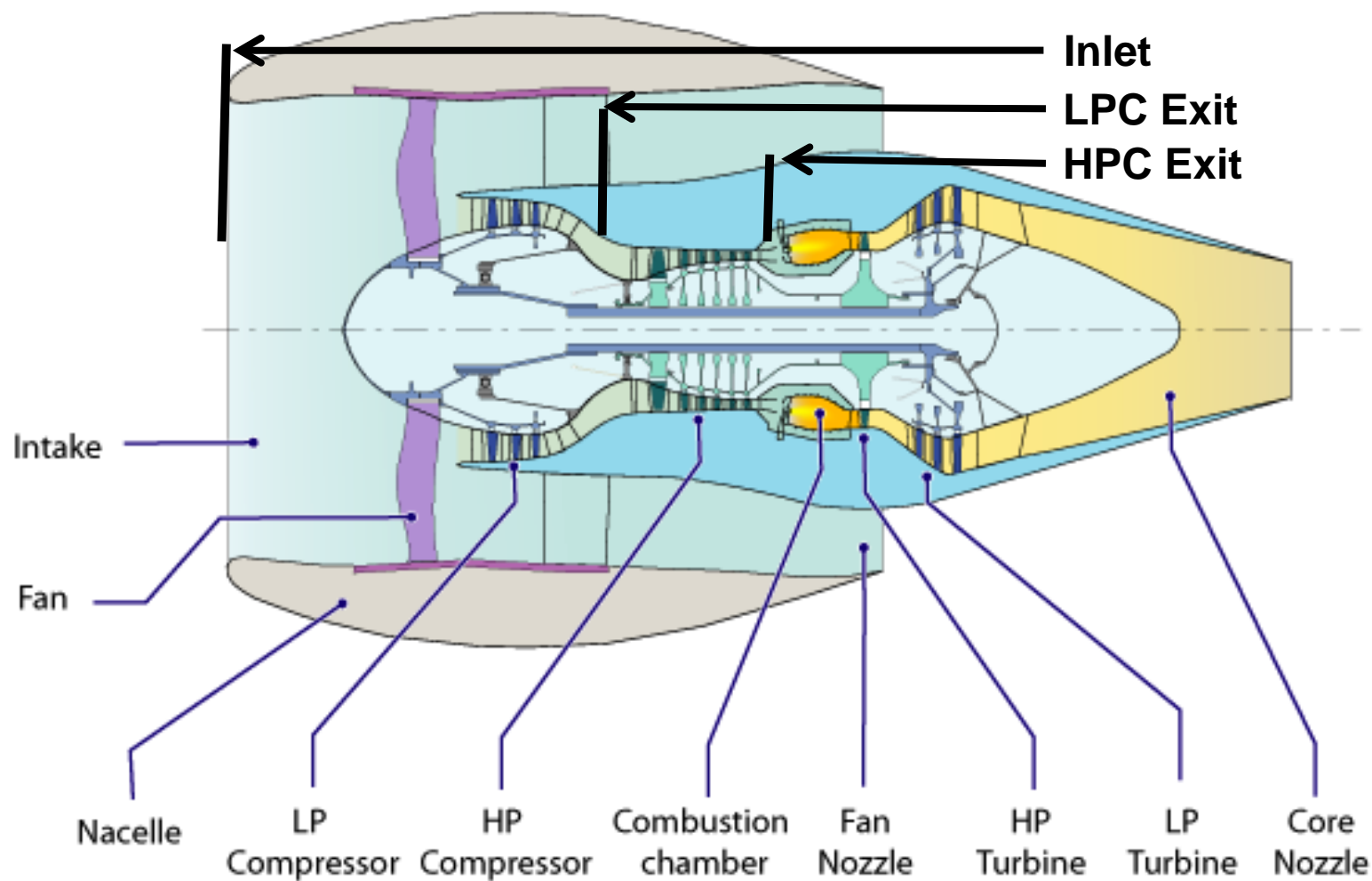


Michael Oliver
NASA Glenn Research Center
Wind Tunnel and Propulsion Test Branch



Flow Path Schematic

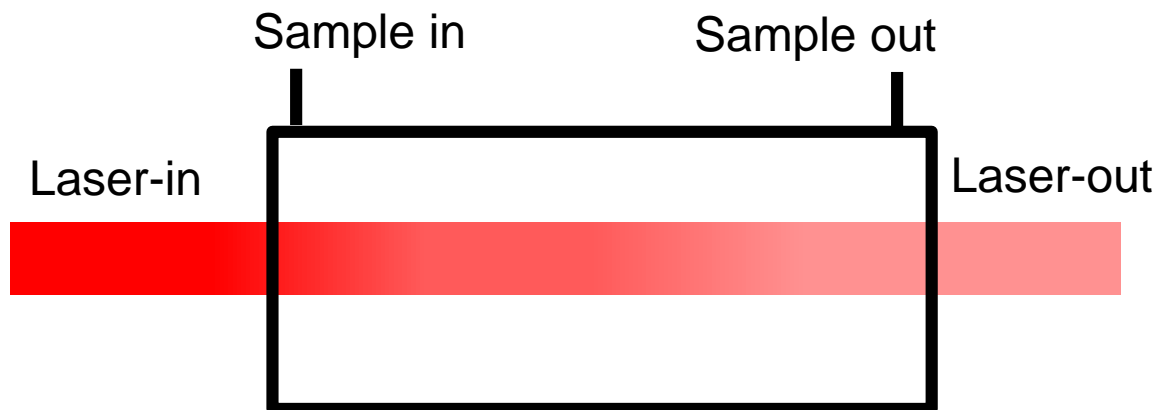
Air Sample Locations





Tunable Diode Laser Absorption Spectroscopy

Based on Beer Lambert Law:

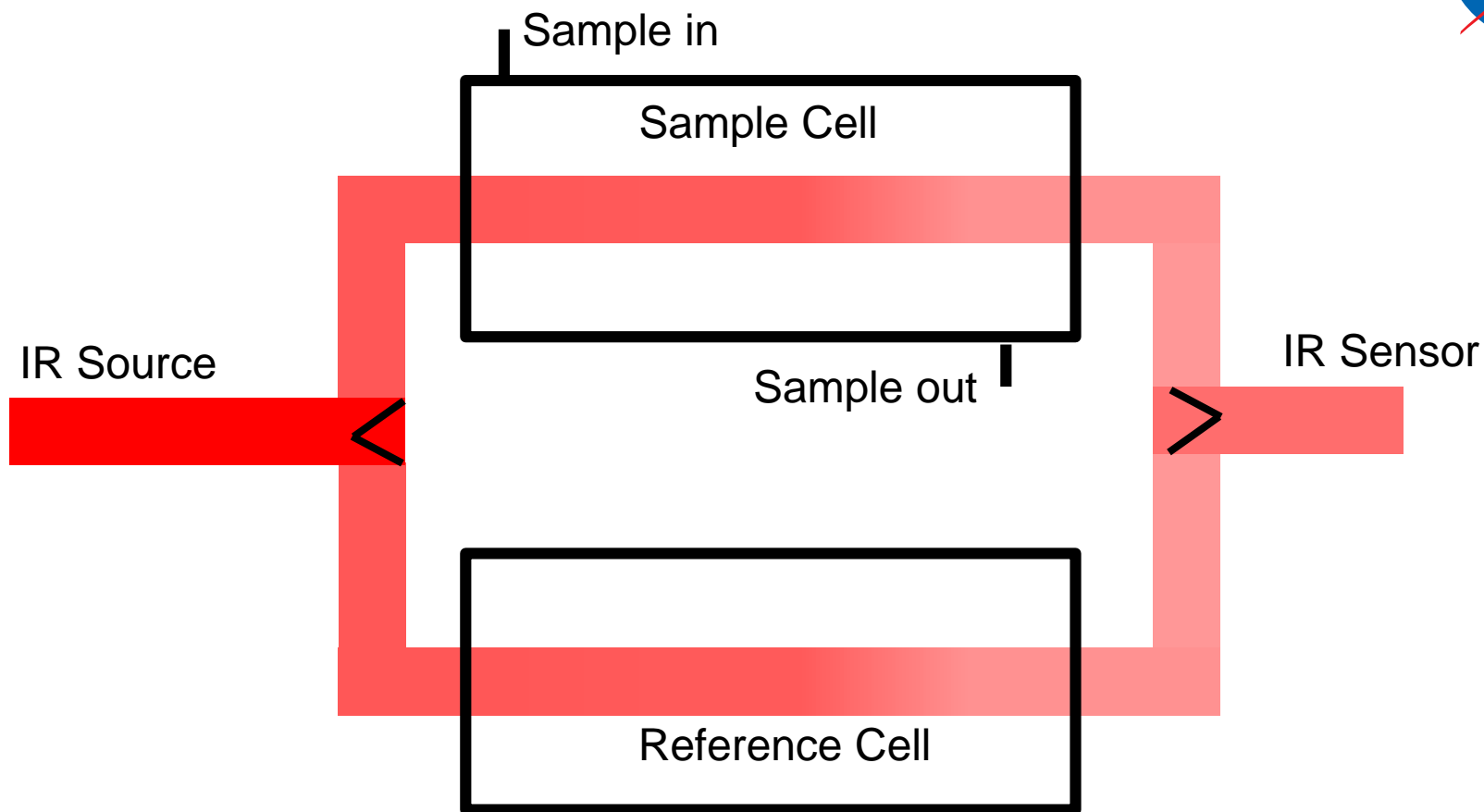


Laser beam Intensity reduced:
water vapor absorbs radiant
energy from beam

Concentration of the water vapor in sample is proportional to the difference between incoming and out going intensity of laser beam



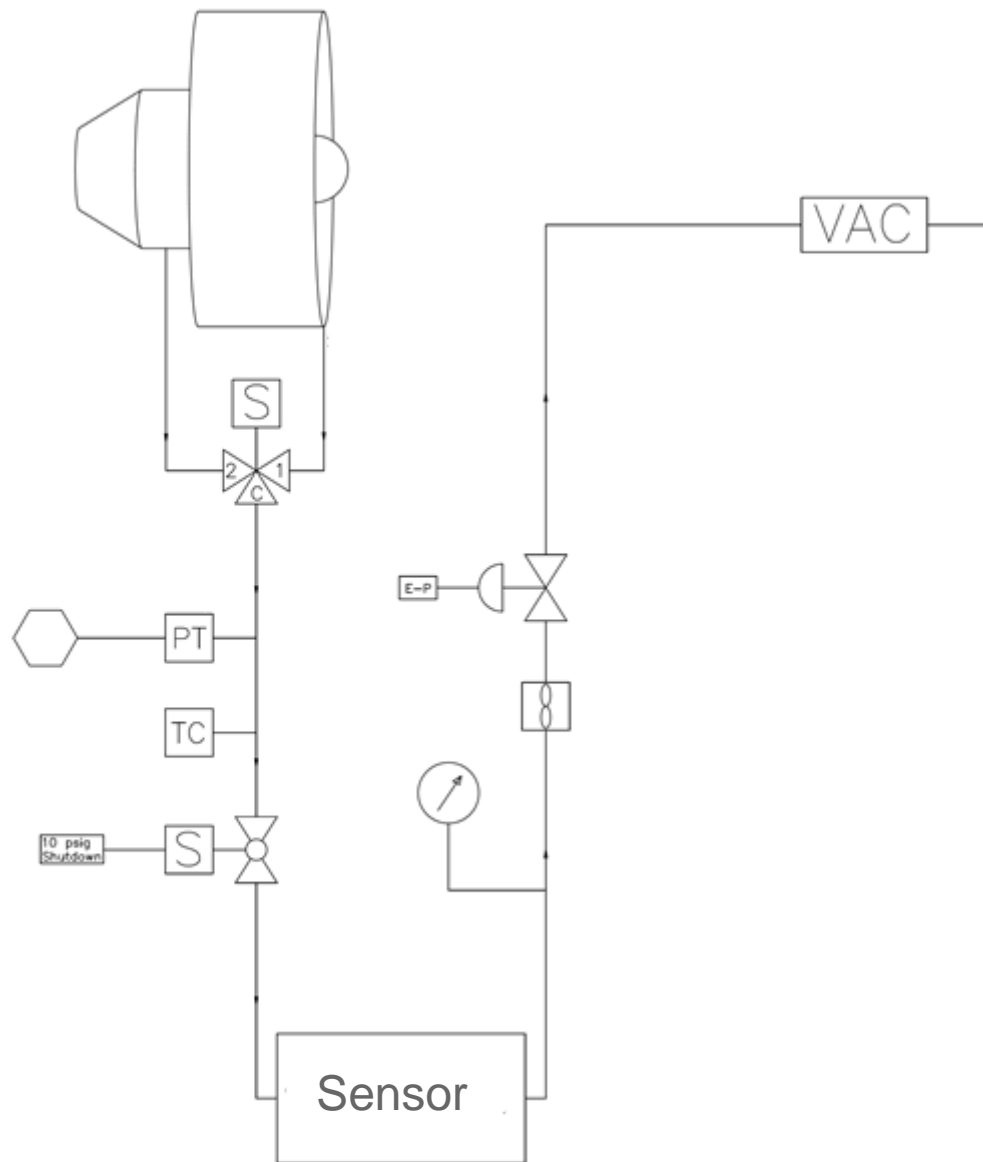
Infrared Absorption Spectroscopy

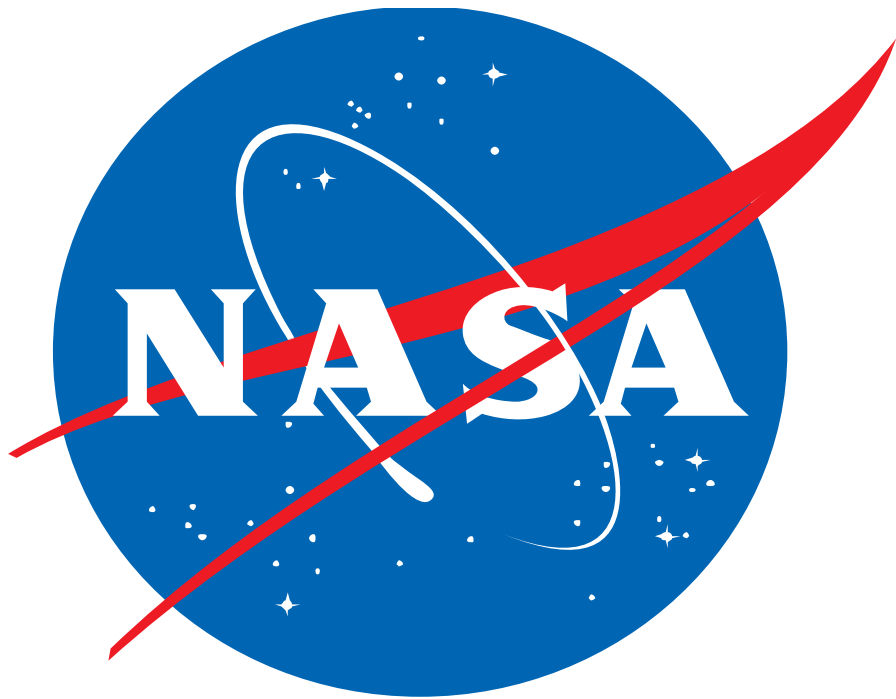


Concentration of the water vapor in sample is proportional to the difference between incoming and out going IR energy



Plumbing Schematic





Questions or Comments